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EXAMINER	
TAYONG, HELENE E	
ART UNIT	**PAPER NUMBER**
2611	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/597,344	CHIN ET AL.	
	Examiner	Art Unit	
	HELENE TAYONG	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 September 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27 and 29-54* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27 and 29-54* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 July 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/07/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Acknowledgement is made of amendment filed 09/25/09.

RESPONSE TO RESTRICTION REQUIREMENT DATED JULY 7 2009

2. The restriction requirement Group I having system and method claims 1-26, 36-52, and 53- 54 and Group II having method claims 27-30 and 31-35, as set forth in the Office action mailed on 07/7/09, has been reconsidered and **the restriction requirement is hereby withdrawn.**

Once a restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. See *In re Ziegler*, 443 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

Original claims 1-27 and 29-54 are pending in this application and have been considered below.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In *re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 18-21, 22-26 and 31-35 of the instant application are unpatentable under the judicially created doctrine of "obviousness-type" double patenting with respect to claims 1 and 14 of U.S. Patent **No. 7099299**.

Instant Application claim 18 defines an obvious variation of the invention claimed in U.S. Patent **No. 7099299**.

The assignee of all applications is the same.

Claim 18 of the instant application is anticipated by patent claims 1 and 14 in that claim of the patent contains all the limitations of claim 18 of the instant application. Claim 18 of the instant application therefore is not patently distinct from the earlier patent claims and as such is unpatentable for obvious-type double patenting.

To the extent that the instant claims are broaden and therefore generic to the claimed invention of **7099299** Patent, in re Goodman 29 USPQ 2d 2010 CAFC 1993, states that a generic claim cannot be issued without a terminal disclaimer, if a species claim has been previously been claimed in a co-pending application.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-6,8-10,36-41,43-45, 53 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dabak et al (US 2004/0071118) in view of Maltsev et al (US 2005/0141657).

(1) with regards to claims 1 and 36;

Dabak et al discloses in (figs. 1, 4) a receiver comprising:

at least one receiver (fig. 1, 110, fig.4, 400, 805) for receiving one or more signals from one or more transmitters(fig.1, 106, fig.4,407), said one or more received signals having an associated chip rate (from transmitter, page 4, [0030], page 4, [0041] in receiver) , said receiver having:

at least one filter for selecting one or more input signals from the received signals (fig.4, 409);

a sequence extension remover (424, 815) for removing a predetermined number of chips from at least one predetermined position of said received signal to form a modified signal (page 5, [0054]);

a despreader (426, 820) arranged to despread said received signal to a symbol rate and to form a despread signal (page 5, [0054]), said symbol rate being less than said chip rate at which said received signal was spread prior (fig. 1, 105, fig.2, page 1,

[0012], page 3, [0030]) to being received by said receiver (800), the ratio of the spread rate to the symbol rate being the processing gain of the receiver (spread spectrum system, CDMA, page 4, [0041]). This is further evidence by Fakatselis J. ("Processing gain for DSSS communication systems and Prism", Application Note, August 1996 AN9633, Intersil Corporation, 2000, pages 1-4) on page 1, second paragraph (Description) that the chip rate is always higher than the bit rate, and the ratio of the chip rate to the bit rate is defined as the processing gain. The processing gain is a true signal jammer (interference ratio at the receiver after the dispreading operation (removal of PN) (see fig. 17 and DSSS Transceiver)

Dabak et al discloses all of the subject matter discussed above, but for specifically teaching a frequency domain equalizer arranged to form a frequency equalized signal from said despread signal.

However, Maltsev et al in the same endeavor (wireless communication system) discloses in (fig. 2), OFDM receiver system with a frequency domain equalizer (220) arranged to form a frequency equalized signal (page 3, [0042]-[0044]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have incorporated the device as taught by Maltsev et al in the device of Dabak et al in a manner as claimed in this application for the benefit of allowing a system to select or adapt a feature or parameter (page 1, [0002]).

(2) with regards to claims 2 and 37;

Dabak et al further discloses wherein said sequence extension remover (fig. 4, 424) has an input for receiving one or more signals output from said at least one filter (409), and said sequence extension remover has an output coupled to an input of said despreader (426, page 4, [0040]-[0041]).

(3) with regards to claims 3 and 38;

Dabak et al further discloses wherein said despreader (426) has an input for receiving one or more signals output from said at least one filter (409), and said despreader (426) has an output coupled to an input of said sequence extension remover (424, page 4, [0040]-[0041]).

(4) with regards to claims 4 and 39;

Dabak et al discloses wherein said despreader (426, 820) has an output (into FFT, fig.4, 428, 825).

Dabak et al discloses all of the subject matter discussed above, but for specifically teaching frequency domain equalizer has an input.

However, Maltsev et al in the same endeavor (wireless communication system) discloses in (fig. 2), OFDM receiver system with a frequency domain equalizer (220) arranged to form a frequency equalized signal (page 3, [0042]-[0044]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have incorporated the device as taught by Maltsev et al in the device of

Dabak et al in a manner as claimed in this application for the benefit of allowing a system to select or adapt a feature or parameter (page 1, [0002]).

(5) with regards to claims 5 and 40;

Dabak et al discloses wherein said sequence extension remover (424, 815) has an output (fig. 4).

Dabak et al discloses all of the subject matter discussed above, but for specifically teaching frequency domain equalizer has an input.

However, Maltsev et al in the same endeavor (wireless communication system) discloses in (fig. 2), OFDM receiver system with a frequency domain equalizer (220) arranged to form a frequency equalized signal (page 3, [0042]-[0044]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have incorporated the device as taught by Maltsev et al in the device of Dabak et al in a manner as claimed in this application for the benefit of allowing a system to select or adapt a feature or parameter (page 1, [0002]).

(6) with regards to claims 6 and 41;

Dabak et al further discloses wherein said at least one receiver (fig. 1,4) further comprises a first converter (422) for converting the modified signal, the first converter having an input coupled to an output of said at least one filter (409).

Dabak et al discloses all of the subject matter discussed above, but for specifically teaching a serial sequence to a parallel sequence.

However, Maltsev et al in the same endeavor (wireless communication system) discloses in (fig. 2), OFDM receiver system with a serial sequence to a parallel sequence (fig. 2, 210, page 3, [0038]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have incorporated the device as taught by Maltsev et al in the device of Dabak et al in a manner as claimed in this application for the benefit of allowing a system to select or adapt a feature or parameter (page 1, [0002]).

(7) with regards to claims 8 and 43;

Dabak et al further discloses wherein said sequence extension remover (fig. 4, 424) is arranged to remove a predetermined number of chips carrying data denoting a cyclic prefix and/or a cyclic postfix (page 4, [0040]).

(8) with regards to claims 9 and 44;

Dabak et al further discloses wherein said at least one receiver (fig. 1, 4) further comprises an orthogonal transform block for transforming ((428) said orthogonal transform block for transforming signal from a first domain to form a transformed signal in a second domain (page 4, [0042]),

Dabak et al discloses all of the subject matter discussed above, but for specifically teaching said orthogonal transform block having an output coupled to an input of said frequency domain equalizer.

However, Maltsev et al in the same endeavor (wireless communication system) discloses in (fig. 2), OFDM receiver system with a frequency domain equalizer (220) arranged to form a frequency equalized signal (page 3, [0042]-[0044]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have incorporated the device as taught by Maltsev et al in the device of Dabak et al in a manner as claimed in this application for the benefit of allowing a system to select or adapt a feature or parameter (page 1, [0002]).

(9) with regards to claims 10 and 45;

Dabak et al further discloses wherein said orthogonal transform block comprises a Fast Fourier Transform block (fig. 4, 428).

(10) with regards to claim 53;

Dabak et al further discloses a code division multiple access (CDMA) system comprising at least one receiver system (fig.2, 205, page 2, [0027]-[0029]).

(11) with regards to claim 54;

Dabak et al further discloses an ultrawide band (UWB) system (fig.1) comprising at least one receiver system (fig1, 110, fig.4, 400, claim 25).

7. Claims 7 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dabak et al (US 2004/0071118) in view of Maltsev et al (US 2005/0141657) as applied in claims 1 and 36 above and further in view of Birru (US 6912258).

(1) with regards to claims 7 and 42;

Dabak et al as modified by Maltsev et al discloses all of the subject matter discussed above, but for specifically teaching a second converter and arranged in a certain positions.

However, Birru in the same endeavor (receiver with frequency domain equalizer) discloses in (fig. 4a) a frequency domain equalizer (200) with FFT 203 and a second FFT 211).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have had the knowledge to incorporate a second FFT as taught by Birru in a frequency domain equalizer in the device of Dabak et al as modified by Maltsev et al in a manner as taught in this application for the benefit of few computations (col.3, lines 1-9)

8. Claims 11-18, 22, 27, 31, 46-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dabak et al (US 2004/0071118) in view of Maltsev et al (US 2005/0141657) as applied in claims 1 and 36 above, and further in view of Falconer D. ("Frequency Domain Equalization for single-carrier broadband wireless systems", IEEE Communications magazine April 2002, pages 58-66).

(1) with regards to claims 12,13, 47 and 48;

Dabak et al as modified by Maltsev et al discloses all of the subject matter discussed above, but for specifically teaching wherein said at least one receiver comprises an inverse orthogonal transform block for transforming said signal from a second domain to a first domain, said inverse orthogonal transform block having an input coupled to an output of said frequency domain equalizer.

However, Falconer D. teaches in (fig. 2) one receiver comprises an inverse orthogonal transform block for transforming said signal from a second domain to a first domain, said inverse orthogonal transform block having an input coupled to an output of said frequency domain equalizer (see fig. 2, page 60 and section on single-carrier modulation with frequency domain adaptive equalizer processing at the receiver).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized the method as taught by Falconer D. in the method of Dabak et al as modified by Maltsev et al in a manner as claimed in this application for the benefit of achieving adequate anti-multipath performance with reasonable complexity as suggested by Falconer D (page 65, summary section).

(2) with regards to claims 11,14, 46 and 49;

Dabak et al as modified by Maltsev et al discloses wherein said first domain is the time domain (fig. 4, 428) and but does not explicitly teach said second domain is the frequency domain.

However, Falconer D. teaches in (fig. 2) a receiver with FFT (first domain) and IFFT (frequency domain).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized the method as taught by Falconer D. in the method of Dabak et al as modified by Maltsev et al in a manner as claimed in this application for the benefit of achieving adequate anti-multipath performance with reasonable complexity as suggested by Falconer D (page 65, summary section).

(3) with regards to claims 15 and 50;

Dabak et al further discloses wherein said one or more filters (409) are matched to a pulse shaping network in said transmitter (fig. 2, 225 and page 3, [0034]).

(4) with regards to claims 16 and 51;

Dabak et al discloses all of the subject matter discussed above, but for specifically teaching wherein said at least one receiver further comprises a deinterleaver block .

However, Maltsev et al in the same endeavor (wireless communication system) discloses in (fig. 2), OFDM receiver system with a deinterleaver block (235, page 3, [0042]-[0044]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have incorporated the device as taught by Maltsev et al in the device of Dabak et al in a manner as claimed in this application for the benefit of allowing a system to select or adapt a feature or parameter (page 1, [0002]).

(5) with regards to claims 17 and 52;

Dabak et al as modified by Maltsev et al discloses all of the subject matter discussed above, but for specifically teaching wherein said frequency domain equalizer is arranged to equalize a frequency-selective fading channel to a non-frequency selective fading channel.

However, Falconer D. teaches in (fig. 2) discloses single-carrier modulation with frequency domain adaptive equalizer processing at the receiver (see, page 59, OFDM section, fig. 2, page 60).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized the method as taught by Falconer D. in the method of Dabak et al as modified by Maltsev et al in a manner as claimed in this application for the benefit of achieving adequate anti-multipath performance with reasonable complexity as suggested by Falconer D (page 65, summary section).

(6) with regards to claims 18, 22, 27 and 31;

Dabak et al discloses wherein said at least one transmitter (fig.1, 105, fig.2) comprises:

at least one spreader (205) for spreading a data packet having one or more blocks to derive a spread sequence for each of said blocks to form a spread signal, said spreader having an input (data) and an output (page 3, [0030];

a sequence extender for extending each of said blocks using a predetermined number of chips to form an extended spread signal, said sequence extender being

coupled to the output of the spreader, said sequence extender having an input and an output (implicitly in figs.1,2 and discussed on page 3, [0032]); and

a pulse shaper (225) coupled to the output of DAC (220).

interleaving (210) , in at least one interleaver, one or more modulated input signals from one or more users to form an interleaved signal (page 3, [0031])

Dabak et al discloses all of the subject matter discussed above, but for specifically teaching the interleaver located before the spreading step and a pulse shaper (225) coupled to the output of said sequence extender shaping.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to relocate the interleaver before the spreader and a pulse shaper coupled to the output of said sequence extender shaping, since it has been held that rearranging parts of an-invention involves only routine skill in the art. In re Japikse, 86 USPQ 70.

9. Claims 19-21, 23-26, 29-30, 32-34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dabak et al (US 2004/0071118) in view of Maltsev et al (US 2005/0141657) as applied in claims 1, 27 and 31 above, and Falconer D. ("Frequency Domain Equalization for single-carrier broadband wireless systems", IEEE Communications magazine April 2002, pages 58-66) and further in view of further in view of Lakkis (US 2005/0094709).

(1) with regards to claims 19, 24 and 33;

Dabak et al discloses wherein said at least one transmitter (fig.1, 105, fig.2) comprises an interleaver (210) for interleaving one or more modulated input signals from one or more users to produce an interleaved signal, said intedeaver having an output coupled (OFDM) (page 3, [0031]).

Dabak et al discloses all of the subject matter discussed above, but for specifically teaching intedeaver having an output coupled to an input of said at least one spreader or prior to the extending step.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to relocate the interleaver before the spreader or prior to the extending step, since it has been held that rearranging parts of an-invention involves only routine skill in the art. In re Japikse, 86 USPQ 70.

(2) with regards to claims 20, 23, 29 and 32;

Dabak et al discloses wherein said at least one transmitter (fig.1, 105, fig.2) further comprises a first converter for converting the interleaved signal from a serial sequence to a parallel sequence, the first converter having an output coupled to the input of said at least one spreader and an input connected to said output of said interleaver.

Dabak et al as modified by Maltsev et al discloses all of the subject matter discussed above but for specifically teaching a first converter (S/P) in specific locations.

However, Lakkis in the same endeavor (UWB transmitter) discloses in (fig. 15, 1504) a serial to parallel converter configured to receive a serial data stream (1502 comprisng a rate R (page 10, [0143]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have incorporated the device of Lakkis in the device of Dabak et al as modified by Maltsev et al in a manner as claimed in this application for the benefit of preventing interference.

(3) with regards to claims 21, 25 and 30;

Dabak et al as modified by Maltsev et al discloses all of the subject matter discussed above but for specifically teaching a second converter (P/S) in specific locations.

However, Lakkis in the same endeavor (UWB transmitter) discloses in (fig. 15, 1512, 1520) a parallel to serial converter (page 10, [0143]-[0145]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have incorporated the device of Lakkis in the device of Dabak et al as modified by Maltsev et al in a manner as claimed in this application for the benefit of preventing interference.

(4) with regards to claims 26 and 35;

Dabak et al further discloses wherein said one or more filters (409) are matched to a pulse shaping network in said transmitter (fig. 2, 225 and page 3, [0034]).

(5) with regards to claim 34;

Dabak et al discloses all of the subject matter discussed above but for specifically teaching a second converter (P/S) in specific locations.

However, Lakkis in the same endeavor (UWB transmitter) discloses in (fig. 15, 1512, 1520) a parallel to serial converter (page 10, [0143]-[0145]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have incorporated the device of Lakkis in the device of Dabak et al as modified by Maltsev et al in a manner as claimed in this application for the benefit of preventing interference.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kakura et al (US 20030137957) discloses Radio transmitting and receiving device and radio communication system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HELENE TAYONG whose telephone number is (571)270-1675. The examiner can normally be reached on Monday-Friday 8:00 am to 5:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Liu Shuwang can be reached on 571-272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Helene Tayong/
Examiner, Art Unit 2611

November 6, 2009
/Shuwang Liu/
Supervisory Patent Examiner, Art Unit 2611